

A REVIEW OF METHODOLOGICAL TRENDS IN SOUTH AFRICAN SOCIOLOGY, 1990–2009

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ABSTRACT

This paper reviews the research methods and methodologies employed by South African sociological researchers when conducting research, as published in academic peer-reviewed journals during the period of 1990 to 2009. Specific attention was given to trends in terms of qualitative and quantitative methodologies employed, as well as sampling, data collection and data analysis methods utilised. The paper addresses, amongst others, the concern expressed in the literature that an over-emphasis on one approach is unhealthy for the development of the social sciences in a country; this paper explores whether such an over-emphasis occurred. Data were obtained from a stratified, systematic sample of 111 research articles sourced from various online databases, and both cross-sectional and longitudinal analyses were conducted. Data analysis primarily involved the use of descriptive statistics, but bivariate analysis and chi-square tests were also employed. The main findings of the research are that, from 1990 to 2009, both quantitative and qualitative methodologies were employed to an equal extent, while amongst sampling methods non-probability methods predominated. Both local and international collaboration increased over the years, and a quantitative methodology was significantly more likely if international collaborators were involved.

Keywords: South African sociology, methodological pluralism, methodological trends, research collaboration

INTRODUCTION

A diversity of approaches can be considered an asset to sociology, as it may be argued that understanding the social world with its multiple facets requires knowledge in more than one field, and skills in more than one method (Payne 2007: 901). A corollary concern is that, within the discipline, an over-emphasis on one type of method or approach could lead to, or be indicative of, a lack of skill in other types of methods or approaches, which could lead to certain topics being ignored or explored in an inappropriate manner. This relates to the issue of methodological pluralism, i.e. that social research should incorporate a variety of theoretical and methodological approaches (Greener, 2011; Payne 2007: 901; Payne, Williams and Chamberlain 2004; Alexander 2004: 10).

Concern has been raised in both international and local (South African) literature about a lack of diversity of methods and methodological approaches employed in academic sociological research, as this could have a detrimental effect on the discipline's ability to sufficiently explore a variety of sociological topics. Specifically, since the early 1990s the possibility has been raised that a qualitative methodology and

related methods are being employed in the majority of sociological research, and that this is perhaps due to (and perpetuated by) a lack of statistical skills among the researchers (Payne 2007: 903; Seekings 2001: 27–29; J.S. Oosthuizen 1991: 45; K. Oosthuizen 1991: 96–97). With regard to South Africa in particular, Seekings argue that, although sociology departments do teach quantitative methods, these methods are often not employed when research is conducted, possibly due to a history of antipathy or even hostility towards quantitative research amongst South African social scientists (Seekings 2001: 2, 7–8, 24). This essentially anti-positivist stance (Muller, 1999, as cited in Seekings 2001: 24) may reflect the strong influence Marxism had on the development of critical and public sociology in South Africa (Burawoy 2004: 21; Webster 2004: 29–30; Groenewald 1991: 48). As Wright explains, ‘left-wing scholars, especially Marxists, are generally sceptical of quantitative analysis and have traditionally relied primarily on historical and qualitative methods in their empirical research’ (1997, as cited in Seekings 2001: 8).

More broadly speaking this scepticism may also reflect an association between the epistemological orientation of the natural science model and positivism on the one hand, and quantitative research on the other. By rejecting the application of the canons of the natural sciences – with their largely positivist overtones – to the study of social reality, and by emphasising the understanding rather than the explanation of human behaviour (Bryman, 2012:28&30), some who hold an interpretivist view and/or for whom positivism is a “pejorative term used to describe crude and often superficial data collection” (Bryman, 2012:27) may also reject, by association, quantitative research. According to Denzin and Lincoln’s (2005) historical stages of qualitative social research, we see “a continued proclivity towards positivism” until the mid-eighties, “but with the beginnings of an interpretivist self-consciousness”, therefore increasing antipathy towards positivism and quantitative research is most probably a feature of the period of interest in our research, i.e. 1990–2009.

However, frequently methodological choices are steered by other considerations, some of a highly practical nature (Platt 1996: 275), such as time and budgetary constraints, as well as lack of international exposure (May, 2005: 523–524; J.S. Oosthuizen 1991: 44; K. Oosthuizen 1991; Olzak 1990). Seekings also suggests that, when quantitative research does feature, they tend to be applied with the assistance of researchers outside of South Africa (Seekings 2001: 26–27). This raises concerns about the state of sociology in South Africa; both in terms of the skills available to the discipline, but also its ability to explore a wide variety of issues and research questions adequately (cf. Bryman 2012: 620).

A high percentage of qualitative (or quantitative) research articles is not an indication that qualitative (or quantitative) methods are more suited for sociological research. No one methodology is superior to another; different methodologies merely aim for different goals and produce different types of data. The types of data needed to answer a question are dependent on the research question (Payne 2007:903; Greener 2011:1; Neuman 2011:91). However, the concern with the over-representation of qualitative research is that those questions requiring a quantitative approach might simply be avoided by sociologists when selecting topics for their research. A lack of a variety of research approaches thus bodes ill for the development of a sociological understanding of the complicated social issues facing South Africa, as it limits the ways in which these multiple-faceted issues can be explored. The aim of this article is to explore the extent of methodological pluralism in recent South African sociological

research and to determine whether any methodological approach is preferred above others.

Methodological pluralism in its wider interpretation also refers to collaboration between researchers with different knowledge and skill sets so they may share these (Payne 2007: 904–905). As mentioned above, it has also been suggested that research published in collaboration with international authors is more likely to be of a quantitative nature than studies in which only South African authors were involved (Seekings 2001: 26–27), and the validity of this statement is also assessed in this article.

RESEARCH QUESTIONS

The overall aim of the research described in this article was to explore the question: which research methods and methodologies were employed by South African sociologists, as reported in peer-reviewed journal articles published from 1990 to 2009? More specifically, four research questions were addressed:

- What are the sampling, data collection and data analysis methods that South African sociologists have used during the past two decades?
- Have there been any changes in the methods used since 1990?
- Has collaboration (local and international) increased since 1990?
- Does collaboration with non-South Africans have an effect on the methodology employed?

“South African sociological research” was operationalised as the content of full-length, empirical research articles dealing with a sociological topic and published in peer-reviewed journals by at least one author with a South African institutional address at time of publication. Only articles from peer-reviewed journals were included, in keeping with common bibliometric practice, and justified by the dominance of this publication medium and the comparability of such articles in terms of having been assessed and certified as a contribution to knowledge (Prozesky 2006: 94). A sampling frame of such articles from which a sample would be drawn was constructed by using a variety of online research article databases, which were selected with the help of the sociology subject librarian at Stellenbosch University. In addition, the Department of Higher Education and Training’s (DHET)ⁱ criteria for subsidised journals were consulted.

The time frame of 1990 to 2009 was selected, as a previous review of methodological trends in South African sociology based on an analysis of articles published in the *South African Journal of Sociology* (SAJS) (Van Staden and Visser, 1991), covered the period 1980 to 1989. Van Staden and Visser’s study provided a useful reference point for the analysis of methodological trends in South African sociological publications, particularly in the analysis of sampling and data analysis methods.

The methodologies used in the articles were investigated in terms of the frequency with which quantitative, qualitative or mixed methods research methodologies were employed. A study’s methodology can be understood as the combination of methods and techniques, and their underlying assumptions, employed in a specific research project (Babbie & Mouton, 2008:48–49). Certain methods are more suited to the logic of a specific type of methodology, e.g. statistical analysis are suited

for quantitative research as the quantitative methodology is an approach to research that aims to investigate the relationships between variables to be able to describe and predict social life by deduction (Creswell, 2009:4; Greener, 2011: 3). In that sense one can speak of, for example, quantitative or qualitative data collection methods. However, it is not sufficient to consider only one of these aspects (for example only the data collection methods of a study) to determine which type of methodology a research project employs. A methodology comprises the combination of these aspects and methods can be used in different and innovative ways or a variety of methods can be used within one research project (Creswell 2009:4–5).

As described in the sub-questions, selected methods and collaboration trends were also examined. Sampling methods were investigated by examining the type of sampling (probability or non-probability) methods, as well as the variety of techniques employed. With regard to data collection methods, the variety of methods used was considered. Data analysis methods were investigated by examining the frequency with which statistical analysis occurred, and the frequency which quantitative and qualitative analysis methods were used. Collaboration trends were examined by investigating the extent to which South African authors collaborated over the years and the type of collaboration which occurred – i.e. with South African (local) researchers or with researchers with an international institutional affiliation – whereafter the focus shifted to the relationship between the type of collaboration and methodology applied.

METHODOLOGY

The research adhered to a quantitative methodology and employed a statistical content analysis of written forms of communication (research articles) as data sources. A probability sample – specifically a stratified systematic sample with a random start – was drawn, as the aim was to generalise to the population, i.e. all articles with at least one South African author, which were published in English from 1990 to 2009 in a peer-reviewed journal, and which concern a sociological topic.

Articles were stratified by the year of publication. An author was considered South African if their institutional affiliation was South African. Only empirical research articles in peer-reviewed academic journals – the target population – were considered. Sociological research that has appeared as "grey" literature; such as conference and seminar papers, unpublished dissertations, and government reports was therefore excluded. Van Staden and Visser were criticised for generalising from the SAJS to all South African sociological research (Botes, Van Rensburg and Groenewald 1991: 50–51; Groenewald 1991: 46). Indeed, not all articles which cover the topic of sociology are necessarily published in sociology journals: as a discipline, sociology does not have fixed boundaries, and overlaps frequently and has many inter-disciplinary ties with other social science disciplines, such as social psychology (Scott 2005). In order to recognise this complexity, and to avoid repeating the shortcoming of the previous review of methodological trends in South African sociology, an alternative operationalisation of "sociological research" needed to be developed. As many research-output databases classify their content by subject, a number of these were selected to compile the sampling frame, but it soon emerged that databases sometimes classified an article as being sociological when neither the journal nor the article dealt with sociological topics. In response, a selection of articles were searched for the presence of the term sociology or its derivatives in the article text, which showed that often the term (or its derivatives) is not stated in articles that are clearly sociological.

We therefore applied one or more of the following additional inclusion criteria: 1) the journal contained “sociology” or its derivatives in its title; 2) the journal was described (on its website or on a flyleaf of the journal itself) as dealing with the topic of sociology; and/or 3) at the time of publication the author was affiliated with a department or other grouping that contains sociology or its derivatives in its name. Applying the second criterion proved quite difficult, as many of the journals simply stated that they were multi-disciplinary. In those cases the articles were retained in the sampling frame. The resulting sampling frame consisted of 906 articles from which a sample of 111ⁱⁱ was drawn (see Basson 2013: 97–103 for a reference list of the empirical articles in the sample).

Data collected from this sample were either quantitative in nature, or were quantified by coding the methods described in the sampled articles in order to allow for quantitative analysis. A primarily inductive method was used to create coding categories; in other words, the terminology and definitions used in the articles were used to develop coding categories, instead of coding according to a pre-defined coding scheme. If the author(s) assigned a name to a method used, it was recorded and coded as such. If the author(s) did not name a method, but explained it in sufficient detail, it was classified and coded according to the types of methods and their definitions found in a variety of methodology textbooks (Babbie 2011; Kumar 2011; Creswell 2009; Babbie and Mouton 2008; Bryman 2008; Creswell 2007; Creswell and Plano Clark 2007; Mouton 2008)ⁱⁱⁱ.

Depending on the unit of analysis, either IBM SPSS Statistics (v.20) or Microsoft (MS) Excel was used to generate descriptive statistics and, where appropriate, IBM SPSS Statistics (v.20) was used to perform chi-square tests to determine whether observed differences and changes over time were statistically significant. The specified level of $\alpha.05$ was selected, thus the confidence level of the estimates are at 95%. The data were therefore analysed both cross-sectionally and longitudinally, depending on the research question at hand.

RESULTS

Methodology

Although the methodology that was used in the research was stated explicitly in only 22 of the articles, most of the other articles provided sufficient detail on methods employed to deduce the research methodology employed on the basis of a close reading, and applying a variety of definitions derived from a selection of textbooks (Creswell 2009; Creswell 2007; Johnson, Onwuegbuzie and Turner 2007; Creswell and Plano Clark 2007). The results presented in Table 1 therefore pertain to those 107 articles, which constitute 96 per cent of the sample:

Table 1: *Changes over time in research methodology employed, 1990–2009*

METHODOLOGY	1990–1999		2000–2004		2005–2009		Total	
	n	%	n	%	n	%	n	%
Quantitative	15	48	11	36	17	38	43	40
Qualitative	12	39	15	48	17	38	44	41
Mixed methods	4	13	5	16	11	24	20	19
Total	31	100	31	100	45	100	107	100

The total column in Table 1 shows that, over the period 1990 to 2009 as whole, qualitative and quantitative methodologies were almost equally represented: a quantitative methodology was employed in 40% (43) of the research published, while 41% (44) of the articles reported on research employing a qualitative methodology. The remaining 19% of articles reported the application of a mixed methods methodology. While some of the literature refers to the possibility that qualitative research may be dominating sociological research, the results for the past 20 years as a whole, do not reflect this.

Table 1 further presents a longitudinal analysis which indicates the frequency with which each methodology was reported across year intervals^{iv}. Among the articles published in the period 1990–1999, those reporting on a quantitative methodology constitute just less than half (48%) of the sample, whereas those reporting on qualitative and mixed methods research constitute 39% and 13%, respectively. Among the articles published during the next time period 2000–2004, the percentage of articles reporting on a quantitative methodology decreased to 36%, while those reporting on a qualitative and mixed methods methodology increased to 48% and 16%, respectively. Among the articles published during the most recent time period (2005–2009), those reporting on a quantitative and qualitative methodology were equally represented at 38% each, while the percentage of articles reporting on mixed methods research again increased to 19% of the sample. Although it seems as if mixed methods research has been increasingly employed over the past two decades, and that quantitative research has been published less frequently, the statistical significance of these observed changes over time were not tested, due to the small number of cases employing a mixed methods methodology. However, such a test is possible in the case of research employing only a quantitative or qualitative methodology, and the results show that changes over time in this regard are not statistically significant (chi-square = 0.63, d.f. = 2, $p > .05$).

Sampling methods

The analysis of sampling methods included an examination of the frequency with which the articles reported the use of probability and non-probability sampling (i.e. the articles were the units of analysis), as well as a count of specific methods/techniques across all articles (i.e. the methods/techniques were the units of analysis) to indicate which types of specific methods/techniques were predominant.

The first notable result of the analysis is that, of those sampled articles to which sampling applied^v, more than two-thirds (41%) did not report a sampling method, or did not do so with sufficient detail to allow us to ascertain, with any degree of certainty, what type of sampling method (i.e. probability or non-probability) had been applied. The lack of detailed sampling reporting prompted us to ascertain whether the tendency to provide detail on sampling was associated with methodology, and the data show that a much larger percentage (58.1) of the articles which reported a qualitative methodology – than the 27% and 35% of articles which reported a quantitative methodology and mixed methods research, respectively – did not report their sampling method in sufficient detail. Thus, even though the lack of detailed sampling reporting is a feature of all of the methodologies, it is particularly prominent in articles that employed a qualitative methodology.

The high incidence of insufficiently detailed sampling reporting also meant that the analysis of sampling methods includes only 58 articles. Of those, only

approximately a third (35%) reported the use of probability sampling, while more than half (53%) reported the use of non-probability sampling, and 12% reported the use of both. Thus, during the two decades studied, non-probability sampling seems to have been used more often than probability sampling. This difference did not, however, prove to be statistically significant (chi-square = 2.37, d.f. = 1, $p > .05$), but due to the small sub-sample, the results of the test should be interpreted with caution.

Next, in order to determine which sampling techniques were most often employed, sampling techniques (rather than articles) were treated as the unit of analysis (and MS Excel used for analysis), due to the lack of reporting described above, but also due to the possibility that a research project could employ more than one type of sampling technique. Table 2 lists all the techniques reported across all the articles for which one or more sampling technique could be identified, and shows the frequencies with which those techniques were applied, categorised by sampling method (probability or non-probability).

From Table 2 it is clear those techniques that Babbie and Mouton (2008) classify as non-probability in nature were most often reported. Among the non-probability techniques, purposive or judgemental sampling was most often applied, followed by reliance on available subjects. Snowball and quota sampling techniques also featured, but much less frequently. Among the probability sampling techniques, simple random and stratified sampling seem most popular in almost equal measure, followed by systematic sampling.

Table 2: *Sampling methods and techniques employed*

Methods/techniques	Frequency	Percentage
NON-PROBABILITY		
Purposive or judgemental	23	32
Reliance on available subjects (convenience/availability/volunteer)	14	19
Snowball	4	6
Quota	1	1
Sub-total	42	58
PROBABILITY		
Simple random	14	19
Stratified	13	18
Systematic	2	3
Sub-total	29	40
OTHER	1	1
TOTAL	72	100

Data collection methods

As with the previous discussion regarding sampling methods, data collection methods were examined in two ways, i.e. firstly with the articles as the units of analysis and then with the methods/techniques as the units of analysis. This was done to investigate which combination of methods was most often used and how often multiple methods were employed, but also to determine which methods themselves were most often employed.

In 87% of the sample, data collection methods were reported in sufficient detail to allow classification, were deemed applicable^{vi}. Upon investigation of the articles as the unit of analysis, it was found that not only did 36% report solely the use of interviews (of various types), but interviewing was also often used in conjunction with other methods, rendering it by far the most prominent data collection method applied (i.e. in 62% of all the research reported). The collection of textual data was the second most popular technique: as the sole technique employed, it was reported in 13% of the sample, but it was also used in conjunction with other methods, such as interviews, observation and questionnaires, as reported in a further 15% of articles. On their own, and in conjunction with other methods, observation was reported in 15% of the articles, and questionnaires were used in 13% of the research reported.

As was the case with sampling techniques, the great variety of data collection techniques, of which more than one was often employed in a single study, gave rise to too many permutations to allow for a detailed analysis using the article as the unit of analysis. To illustrate, half (51%) of the articles that reported data collection methods referred to the use of more than one data collection method, and 14% reported the application of more than two.

Thus, as with sampling, the unit of analysis in the following results is the data collection methods/techniques, not the articles. It should be noted however, that researchers tend to use the terms questionnaire, interview schedule and structured interview interchangeably and in such a way that they could be referring to either a questionnaire or a structured interview. With careful reading double counting of these data collection methods was avoided, however this complicated the analysis of and reporting on data collection techniques, and the finding that interview methods are the most popular, should be approached with caution.

Table 3: *Data collection methods and techniques employed*

Methods/techniques	Frequency	Percentages
INTERVIEWS		
Interview (unspecified)	31	20.1
Focus group interview	16	10.4
In-depth interview	13	8.4
Structured interview	7	4.5
Semi-structured in-depth interviews	2	1.3
Household interview (unspecified)	2	1.3
Telephone interview (unspecified)	1	0.6
Sub-total	72	46.8
QUESTIONNAIRES		
Administered questionnaire	8	5.2
Self-administered questionnaire	7	4.5
Mailed questionnaire	4	2.6
Questionnaire (unspecified)	2	1.3
Household questionnaire	1	0.6
Sub-total	22	14.3
OBSERVATION		
Observation (unspecified)	15	9.7

Participant observation	3	1.9
Non-participant observation	1	0.6
Personal observation	1	0.6
Sub-total	20	12.0
TEXTUAL DATA COLLECTION	31	20.1
PHYSICAL EXAMINATION	4	2.6
OTHER	5	3.2
TOTAL	154	100.0

Table 3 shows that interviews featured most often (in 47% of the articles) as a data collection method, and adding the various administered questionnaires increases the prevalence to 53%. Textual data collection emerged as the second-most frequently employed data collection method, but it was reported at a much lower prevalence (20%) than interviews. The most frequently specified interview technique was focus group interviews (10%).

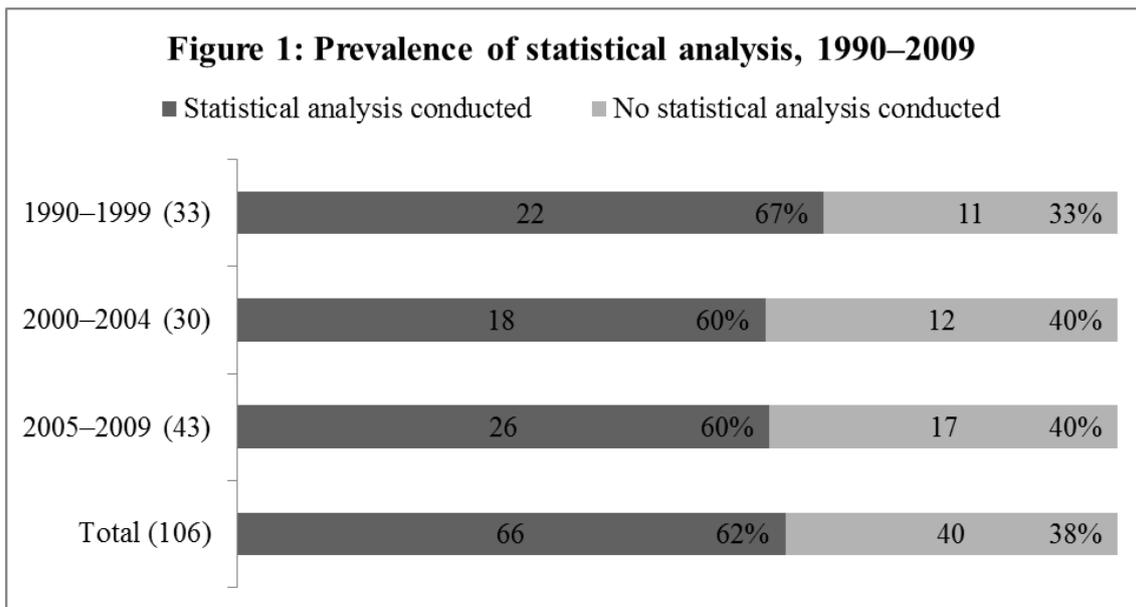
Questionnaires constituted 14% of the data collection techniques employed, with administered questionnaires as the most frequently specified type. However, if one considers administered questionnaires as interviews, then the self-administered questionnaire becomes the most frequently specified questionnaire type. Observation constituted 12% of the techniques mentioned, with participant observation most often specified as the technique (the observation technique was, however, rarely specified).

Data analysis methods

The data analysis methods reported in the sample of articles were investigated firstly according to the frequency with which statistical analysis techniques (ranging from basic descriptive analysis to complex multivariate techniques) were employed, and secondly, by determining the distribution of qualitative and quantitative analysis methods/techniques.

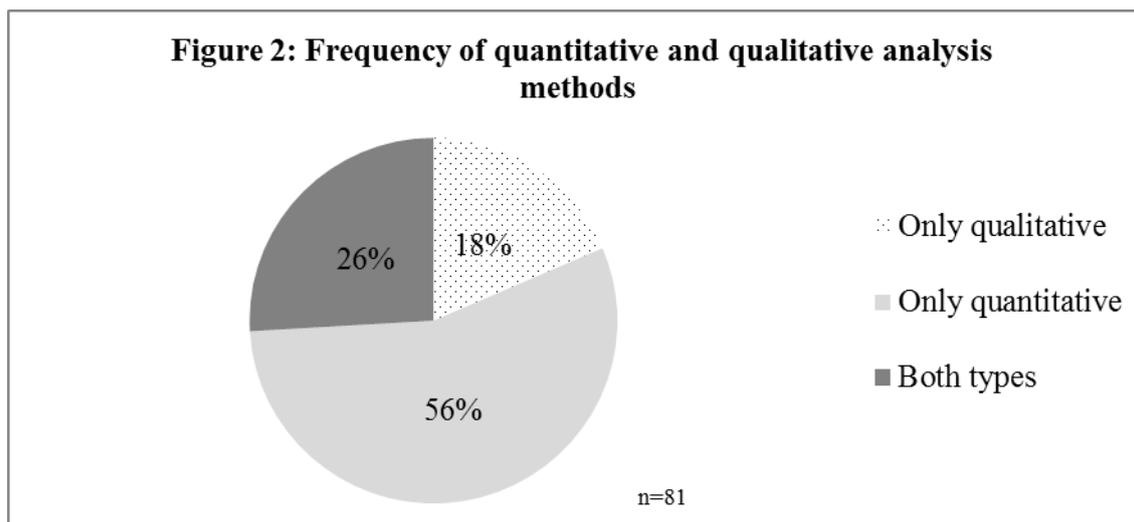
Only three articles did not sufficiently report on data analysis to allow one to determine whether statistical analysis was conducted (i.e. it was unclear whether the statistics presented originated from a secondary source, from referenced articles or from an analysis of the data collected for the study). In two other articles it was explicitly stated that analysis had not yet been conducted. Figure 1 presents the results of both a cross-sectional and a longitudinal analysis of the frequency with which statistical analysis was conducted, as reported in the remaining 106 articles.

The majority of the articles (62%) report that some type of statistical analysis was conducted. Although it seems that the past two decades has seen some decrease in the frequency with which statistical analysis was conducted, a chi-square test indicated that this change over the years is not significant (chi-square = 1.78, d.f. = 4, $p > .05$).



Statistical analysis is most commonly associated with a quantitative methodology, because one of the aspects of this methodology is to quantify the aspects that are being investigated. By examining the prevalence of statistical analysis, an indirect indication of the prevalence of quantitative analysis was therefore obtained. To provide more direct evidence, the frequency whereby qualitative and quantitative analysis methods or techniques were employed was investigated.

Only three-quarters (74%) of the articles (excluding those two which reported on research that did not involve data analysis) reported sufficiently on analysis methods to allow one to identify whether qualitative or quantitative analysis took place. As Figure 2 below indicates, of those 81 articles, only approximately one in five (19%) reported the use of qualitative methods, while references to quantitative analysis methods were found in slightly more than half (56%) of the articles. A combination of both quantitative and qualitative methods was reported in a quarter (26%) of the articles, i.e. more frequently than qualitative analysis methods on their own. The articles which report the use of both types of methods should not be necessarily interpreted as articles which report on a mixed methods research methodology, as qualitative researchers sometimes undertake a limited amount of quantification of their data (also see Bryman 2012: 621), but this does not necessarily constitute mixed methods research.] A longitudinal analysis of the results were however not viable, due to the relatively small number of articles (15) which report qualitative data analysis methods.



In addition to this investigation of articles as the unit of analysis, the methods themselves were analysed as such. The results are presented in Table 4 below to primarily indicate the vast range of data analysis methods identified in the articles, as well as how these were classified. However, the table also strongly supports the finding that quantitative data analysis methods are more often employed than qualitative ones, and indicates very high incidence of the former (73%), with the latter representing less than one-fifth (19%) of all the methods/techniques used. This increased frequency in quantitative data analysis methods is due to the occurrence of multiple statistical methods reported in a single article, as well as the large amount of descriptive statistics employed, which, when grouped into a single category, constitute almost half (46%) of all the quantitative data analysis methods/techniques used.

Interestingly, in only three cases it was stated that computer-assisted data analysis was conducted (once with SPSS, once with SAS and once with Atlas.ti), although this does not necessarily reflect the actual extent of the use of such software, which one could reasonably expect to be much higher, especially to conduct complicated statistical analysis.

Table 4: *Data analysis methods and techniques employed*

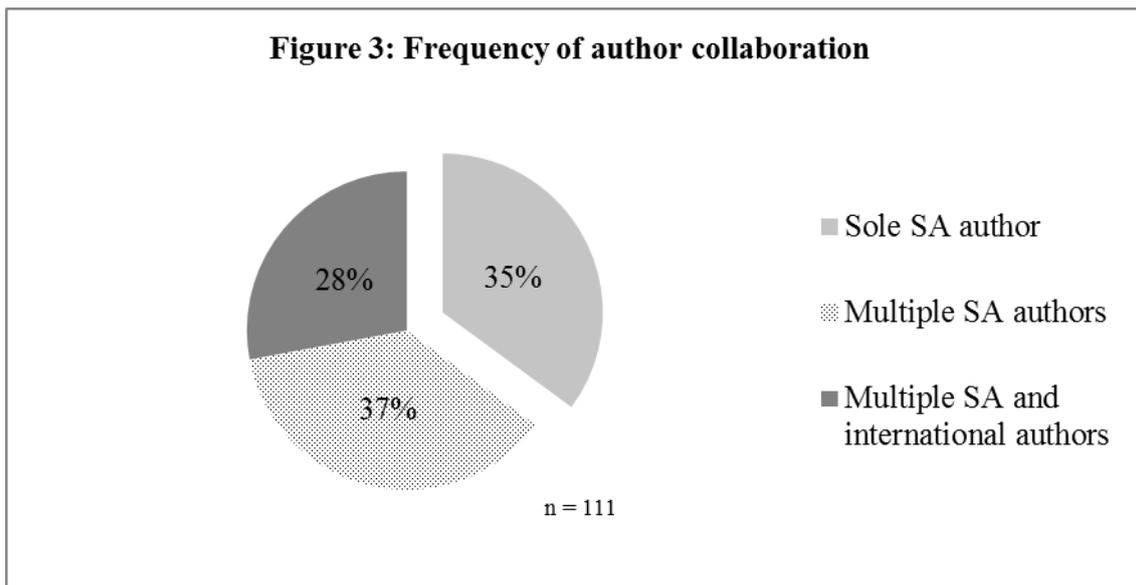
Method	n	%
QUANTITATIVE		
Univariate analysis (<i>descriptive analysis</i>)	2	1.2
Distributions (<i>frequency analysis/tables</i>)	5	2.9
Subgroup comparisons (<i>between-/within-group analysis</i>)	2	1.2
t-test	2	1.2
Bivariate analysis (<i>cross-tabulations/contingency tables</i>)	7	4.1
Statistical methods		
Descriptive statistics	57	33.3
Measures of association		
Pearson's product moment correlation	3	1.8
Spearman's rank order correlation coefficient	2	1.2
Biserial correlation	1	0.6
Regression analysis	2	1.2
Multivariate	3	1.8
Multinomial	1	0.6

Multiple	2	1.2
Multiple linear	2	1.2
Multiple logistic	3	1.8
Logistic (<i>binary logit</i>)	4	2.3
Backward stepwise elimination	1	0.6
Hierarchical	1	0.6
Other multivariate techniques		
Factor analysis	1	0.6
ANOVA	10	5.8
MANOVA	1	0.6
Kruskal-Wallis	1	0.6
Scheffe post hoc comparison	1	0.6
Inferential statistics: Tests of statistical significance		
Chi-square	9	5.3
Jack knife repeated replications simulation	1	0.6
Quantitative modelling	1	0.6
Rate ratios	1	0.6
Sub-total	126	73.7
QUALITATIVE		
Content analysis (<i>thematic/textual/documentary</i>)	23	13.5
Discourse analysis (<i>discursive</i>)	3	1.8
Grounded theory	6	3.5
Linguistic	1	0.6
Sub-total	33	19.3
OTHER		
Survival	3	1.8
Life-table	2	1.2
Sensitivity	1	0.6
Comparative	2	1.2
Subject	1	0.6
Policy	1	0.6
General livelihoods	1	0.6
Multiple classification	1	0.6
Sub-total	12	7.0
TOTAL	171	100.0

Research collaboration

Collaboration trends were examined by investigating how often South African authors collaborated over the years and the type of collaboration which occurred; i.e. with South African (local) researchers or with researchers who have an international institutional affiliation. Also investigated was whether certain methodologies were more likely when international or local collaboration occurred.

Whether an article had a South African author was known in all cases (111), as this was one of the criteria for inclusion of articles in the sampling frame. It was found that the majority of articles (72%) were authored by South Africans only, and that almost half of those articles (39), or 35% of the total, had only one author, as Figure 3 below shows:



Among the 72 articles that have multiple authors, collaboration seem to have been more likely with fellow South Africans (57%) than with international authors (43%). However, the difference was not statistically significant (chi-square = 1.39, d.f. = 1, $\rho > .05$). As most of the academic boycotts and sanctions that characterised the apartheid era had already been lifted by the early 1990s, one would expect South African sociologists to have increased the extent of their international research collaboration since 1990. The findings presented in Table 5 would suggest that this has indeed been the case: from 1990 to 2009, South African authors publishing in the field of sociology have been publishing increasingly with international collaborators, and the difference across the three time periods is statistically significant (chi-square = 18.40, d.f. = 2, $\rho < .05$).

Table 5: *Author collaboration, 1990–2009*

AUTHORS	1990–1999		2000–2004		2005–2009		Total	
	n	%	n	%	n	%	n	%
Only South African	31	94	26	79	23	51	80	72
South African and other	2	6	7	21	22	49	31	28
Total	33	100	33	100	45	100	111	100

Also investigated was whether the type of methodology reported in research articles relates to the configurations of authors who published them. In particular and on the basis of the arguments of Seekings (2001), it was hypothesised that South African authors would be more likely to publish qualitative research when publishing alone or with other South Africans, and more likely to publish quantitative research when collaborating with international authors.

This hypothesis seems to be supported by the data: a much larger percentage of articles authored by a mix of South African and international authors (55%) than by South Africans only (34%) reported the use of a quantitative methodology. Conversely, a much smaller percentage of articles authored by a mix of South African and

international authors (23%) than by South Africans only (49%) reported the use of a qualitative methodology. Interestingly, mixed methods are more frequently reported when non-South Africans are included as authors. These differences are all statistically significant (chi-square = 6.33, d.f. = 2, $p < .05$).

DISCUSSION

The concern regarding methodological pluralism relates to the competency of the researchers to apply the methods associated with different methodologies, and in particular to an apprehension that if researchers do not have a sufficiently wide skill set, the discipline in which they work will become increasingly myopic (Williams, Payne, Hodgkinson, Poade 2008; K. Oosthuizen 1991; Payne *et al.* 2004:161–162). One of the most commonly accepted ways in which the extent of the problem has been measured, has been to investigate what methodologies researchers employed, as reported by them when they publish the research in a journal article (e.g. Payne *et al.* 2004), and a similar approach was also taken for our research. Considering the results from research conducted by Payne *et al.* (2004) in relation to a tendency among British sociology researchers to make use of a qualitative methodology, and the concern expressed by authors regarding a possible lack of statistical expertise in the social sciences in South Africa, it was quite unexpected to find an almost equal representation of quantitative and qualitative methodologies among South African sociologists' published research (Seekings 1991; Olzak 1990 Van Staden and Visser 1991 40–42).

This seems to indicate that these researchers are roughly equally divided between those who address research problems that require a quantitative methodology, and those who approach research topics with a qualitative research methodology. However, the approach used in this study only allows one to determine to what extent a variety of authors report on using various methodologies and cannot provide direct evidence of preference for a particular methodology among sociologists. It cannot distinguish between whether there are equal amounts of authors who favour one of the two (quantitative or qualitative) methodologies, or a variety of authors who conduct studies making use of either in various articles. A possible solution to this would be to study South African sociologists as the unit of analysis instead, whereas this study investigated the research produced by sociologists in South Africa (in collaboration with other researchers).

Neither does this approach allow for a direct measure of researchers' competency in particular methods, beyond the observation that, collectively, the authors are sufficiently competent in the methods to have published their results in peer-reviewed journals. Even though the study indicates that both quantitative and qualitative methodologies were employed to an equal extent, that a large range of statistical analysis techniques were employed and the majority of articles made use of some type of statistical analysis; this study cannot indicate whether these methods were employed skilfully or even by South African authors themselves. This study did not include additional quality checks for the methods used beyond the peer-review system and a significant amount of quantitative articles were co-authored with international collaborators.

As stated in the methodology section, this study only investigated empirical research articles published in peer-reviewed academic journals, thus research appearing in other mediums were excluded. Other mediums could have a different distribution of methodologies favoured e.g. researchers with a preference for qualitative research might

see books as a better outlet for their work (Moksony, Hegedűs and Császár 2014). Investigations including "grey" literature could provide other insights regarding what methodologies South African sociologists favour.

Although we did not observe a statistically significant change in terms of qualitative or quantitative methodology employed over the past two decades, this result does not necessarily lead one to conclude that sociology researchers have not become more aware of, and competent in, a variety of methods. For example, the frequency with which mixed methods research was reported has doubled in the past 20 years, however the statistical significance of this could not be tested due to the few articles employing this methodology.

On a finer scale, the analysis did, however, provide some more evidence on the extent of methodological pluralism in South African sociology. Not only did all the qualitative studies (or at least those that sufficiently reported on their sampling methods) make use of non-probability sampling methods, but more than a third of the quantitative research and the majority of mixed methods research designs involved the use of non-probability methods, either solely or in combination with probability methods. A possible reason for this seemingly persistent popularity of non-probability sampling methods, even in research applying a quantitative methodology, could be that social research is often conducted in situations where a probability sample simply cannot be drawn, for example, when no list of the study population exists and creating one is not feasible. Contextual issues related to housing arrangements, area demarcation and restricted access, just to name a few obstacles, make ideal case probability sampling difficult even when it is the reported sampling method for a study. A related point is that the relatively inexpensive and uncomplicated nature of non-probability techniques (Babbie and Mouton 2008: 166) could have contributed to their attractiveness. As Bryman (2012: 202) states, 'Probability sampling involves a lot of preparation, so that it is frequently avoided because of the difficulty and costs involved'. In other cases, such as qualitative studies, a probability sample is considered undesirable on the basis of epistemological considerations. This combination of factors therefore provides an explanation for our observation that the specific technique of purposive sampling has been the most popular sampling technique in recent South African sociological research.

It is, however, a cause for concern that reliance on available subjects, or 'convenience sampling' (Bryman, 2012: 201), has been the second-most frequently used sampling technique among sociologists since 1990. According to Bryman (2012: 201), convenience sampling may be 'acceptable' for a pilot study, 'though not ideal', and 'fairly acceptable ... when the chance presents itself to gather data from a convenience sample and it represents too good an opportunity to miss'. However, he also highlights the fact that this technique 'probably plays a more prominent role than is sometimes supposed' (Bryman 2012: 201), as our research has highlighted in the case of South African sociology. Babbie and Mouton (2008: 166) concur that this is an 'extremely risky' sampling technique ... used all too frequently'. On the other hand, Babbie and Mouton's (2008: 90) assertion that simple random sampling (SRS) 'is seldom used in practice' is not supported by the results, as it was the most popular probability method employed by authors (with stratified sampling almost as frequently reported, followed by systematic sampling). According to Babbie and Mouton (2008: 190),

SRS typically requires a list of elements. When such a list is available, researchers usually employ systematic sampling rather than simple random sampling ... By now, debates over the relative merits of simple random

sampling and systematic sampling have been resolved largely in favour of the latter, simpler method.

It therefore seems that South African sociology researchers tend to be unaware of the merits of SRS in relation to those of systematic sampling. More than 20 years ago, Olzak (1990) and Van Staden and Visser (1991: 40–42) expressed a concern about South African social researchers' knowledge and expertise in advanced research techniques. Our findings of an apparently unawareness of the merits of SRS and a heavy reliance on available research participants among sociology researchers in South Africa shows that this concern is probably still justified today.

Another finding that tends to reflect negatively on the discipline was that only slightly more than half of the articles reported on sampling methods in sufficient detail to allow one to determine what is arguably a key concern: whether the assumptions of probability theory were employed. A similar observation was made by Van Staden and Visser (1991: 38): as much as 24% of the articles they analysed simply did not mention how sampling was conducted. Thus, not only do South African sociology researchers often fail to describe their sampling strategy, but articles that omit basic sampling information are accepted for publication in peer-reviewed journals. In other words, the editors and reviewers of these journals accept this as standard practice, and it seems to have become the norm in the field, at least in South Africa, to not report sampling methods or techniques in any detail. A research article is an attempt to convince the audience of the findings of the research, which implies that the author would present the research in the most convincing way, possibly only including the most prominent findings and details of the research (Sismondo 2004:142–143). The task of the peer-review system, however, is to ensure that articles meet the stringent demands of scientific inquiry. The lack of accurate reporting therefore reflects poorly on both South African sociologists as well as the review system employed by journals.

Compared to sampling methods, data collection methods were, however, well reported; 87% of the articles reported data collection methods. Over the past two decades the most popular data collection method has been the interview, followed by the collection of textual data. However, it should be noted that researchers tend to use the terms questionnaire, interview schedule and structured interview interchangeably, which complicated the analysis of and reporting on data collection techniques, and the finding that interview methods are the most popular should therefore be approached with caution. This illustrates the complications of analysing the methods researchers use when conducting sociological research; even when methods are reported, terms can still be used inconsistently within and across articles making comparison difficult.

With regard to data analysis methods, the expectation was that many studies would have involved some form of descriptive statistics, as it was the most popular analysis method according to Van Staden and Visser's study (1991), and that quantitative techniques and tools would be described in detail (Greener 2011: 3–4). Indeed, in all but 5% of the articles it was possible to determine whether researchers made use of some type of statistical analysis or not, and in a large majority of the cases some type of descriptive statistics was indeed reported. Upon more detailed investigation of the extent to which quantitative and qualitative analysis methods were employed, the classification of the research in this regard became more difficult, and approximately a quarter of the sample had to be excluded from the analysis on the basis of insufficient description of data analysis methods.

Among those articles that could be analysed in this regard, quantitative data analysis methods were dominant, especially if one also considers research that used both quantitative and qualitative methods. However, this observation may be a reflection of the tendency among researchers to report in more detail on certain types of (i.e. quantitative) methods, rather than an indication of frequency of use. The finding that qualitative analysis methods were not explicitly referred to as often as quantitative ones were, probably reflects the fact that, 'unlike the analysis of quantitative data, there are few well-established and widely accepted rules for the analysis of qualitative data'; while the methods of quantitative data analysis give one 'an unambiguous set of rules' about how to handle one's data. Qualitative data analysis 'has not yet reached this degree of codification of analytic procedures, and many writers would argue that this is not necessarily desirable anyway' (Bryman 2012: 565). A relative lack of explicit reference to qualitative data analysis methods may also be ascribed to the very nature of qualitative research, in particular the narrative form which could lead to an avoidance of technical terms (Creswell 2007; Hennink, Hutter and Bailey 2011: 32; Suter 2012: 346). Quantitative research, on the other hand, tends to focus much more on naming methods and techniques in fine detail and using pre-determined techniques, as also illustrated in Table 4 of this article (Greener 2011: 3–4). However, it also needs to be recognised that a lack of rigour and neglecting to clearly report the methods used in a study may be detrimental to the validity of the findings, regardless which methodology was followed (Creswell 2007: 46).

Finally, it was found that that the majority of articles were authored by South Africans only, and that almost half of those articles had only one author. However, collaboration (including international collaboration) has increased significantly since 1990. Related to the discussion of methodological pluralism is the notion that authors should collaborate more and share expertise (Payne 2007: 904–905; Alexander 2004: 10; K. Oosthuizen 1991: 96–97). The fact that collaboration has increased significantly is thus encouraging for the discipline, and could be ascribed to the increasing focus in South Africa on the international visibility and competitiveness of its researchers (see, for example, Gevers 2006: 2 and Council on Higher Education 2004: 219).

A review of the literature pertinent to this study led to a concern that expertise in quantitative methods may emanate primarily from international authors and sponsors (Seekings 2001: 26). At first glance, the findings seem to support this, as articles that included non-South African authors were more likely to report on quantitative research than those authored solely by South Africans. One should, however, be careful when drawing conclusions from these results. One cannot, for example, conclusively deduce from these findings that international authors bring the quantitative expertise to the research. Another interpretation may be that the nature of quantitative research, particularly large-scale surveys, might lend itself more to international collaboration than qualitative research does (Seekings 2001: 26–27). Quantitative research generally aims to generalise to large, even cross-national, populations, while qualitative studies are usually focussed on a very specific context (in this case South Africa), and therefore may not require or attract the input from researchers from other countries or contexts.

CONCLUSIONS

The key conclusion drawn from this research is that, in the past two decades, both qualitative and quantitative research methodologies have been used to an equal extent by South African sociologists, and this would suggest that methodological pluralism is

present. The fact that collaboration of an international nature has increased over the years is an encouraging sign that ideas and skills are being shared, and in that sense, methodological pluralism is also likely. When one considers more carefully the methods employed in different research phases, a different picture does, however, present itself. Non-probability sampling methods were used in more than half of the research analysed, and during data analysis, statistical analysis methods were reported much more often and in far more detail than qualitative methods. Also, South African sociological research is more likely to be of a quantitative nature when international collaborators are involved. Another important feature of published South African sociological research is that methods, especially those related to sampling and qualitative data analysis, often go unreported, but that this does not impede acceptance for publication by editors and peer-reviewers.

During the course of the research, it became clear that an investigation of the theoretical construct of methodological pluralism is too complicated to be relegated to a mere keyword search, as methods and methodologies are often not named. Other factors, such as the way in which methods are reported, influence the results greatly: at the level of methodology, quantitative and qualitative methodologies seem to have been applied in equal measure, while at the level of methods a lack of reporting complicates the analysis, and this balance between the two methodologies is not clearly reflected, as certain methods seem to be favoured much more than others. Even though methodological pluralism seems to be present in sociological research in South Africa when one considers the overall methodologies employed, the fact that sociologists in general do not report their methods well, renders this finding somewhat ambiguous. Neglecting to report methods in itself poses a threat to the quality of the sociological research in South Africa and is worth researching further.

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BIOGRAPHICAL NOTE

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ⁱ The journal "African Sociological Review" was unfortunately excluded from the sampling frame, as it was not listed in the 2009 DHET list. Although it was included in future lists, sampling was conducted in 2009 and therefore only the 2009 list was consulted. The journal "Social Dynamics" was excluded due to it being indexed in the Thomson Reuters Web of Science (WoS) as "Social Dynamics: A Journal of African Studies". A search for the shorter phrase "Social Dynamics" produces no results in the database, and it was therefore assumed that the journal was not indexed in the WoS.

ⁱⁱ Due to time constraints the sample size needed to be limited to a manageable size. The original sample included 151 articles, however it was found that 40 articles were non-empirical articles even after considerable effort was made to remove these from the sampling frame. The remaining 111 was thus analysed.

ⁱⁱⁱ See Basson 2013: 43–46 for these definitions and further elaboration on the coding scheme.

^{iv} Because of an uneven distribution across the publication years, and a small proportion of articles in the early years, for longitudinal analyses discrete publication years were collapsed into intervals comprised of the first ten years and then two groupings of five years thereafter, to ensure that each of the three groupings were deemed to contain a sufficient number of articles to allow for longitudinal analysis. The first and second intervals contained the same percentage of articles (30%), while the last interval comprised 40% of the sample.

^v In the case of articles that reported on secondary data analysis, sampling methods were not recorded if the authors did not draw an additional sample from the existing data. The rationale is that, even though sampling may have taken place prior to collecting the primary data, this constituted a different study from the secondary analysis of those data reported in those articles.

^{vi} In six cases data collection was not reported in sufficient detail, and in eight cases the collection of data was defined as not applicable, as the articles reported the analysis of secondary data.